

Notes 12/16 - Factoring Trinomials with $a \neq 1$

$$ax^2 + bx + c$$

1. Find the 2 numbers whose product is $a \cdot c$ and whose sum is b .

$*a \cdot c$	$+b$

2. Use those 2 numbers from the first step to split apart the bx

$$\underline{\quad}x + \underline{\quad}x$$

3. Factor by grouping

Ex 1:

$$\begin{array}{r} ax^2 + bx + c \\ 2x^2 - x - 3 \end{array}$$
$$2x^2 + 2x - 3x - 3$$
$$2x(x+1) - 3(x+1)$$

$$\boxed{(2x-3)(x+1)}$$

Need $*a \cdot c$ $+b$

$*a \cdot c$	$+b$
$2(-3)$	-1
-6	
$2, -3$	$-1 \checkmark$

Ex 2:

$$3x^2 + 5x + 2$$

$$3x^2 + 2x + 3x + 2$$
$$x(3x+2) + 1(3x+2)$$

$$\boxed{(x+1)(3x+2)}$$

Need $*a \cdot c$ $+b$

$*a \cdot c$	$+b$
$3 \cdot 2$	5
6	
$2, 3$	$5 \checkmark$